

ENTOMOLOGY.—*Notes on Harmostes, with descriptions of some new species (Hemiptera: Corizidae).*<sup>1</sup> H. M. HARRIS, Ames, Iowa.

Because the earlier descriptions dealt largely with color and because it is now recognized that intraspecific variation in color is very great, entomologists in general have had great difficulty in identifying specimens of Corizidae. The present notes are offered in an attempt to make known structural features that it now appears may be of some worth in segregating species of the genus *Harmostes* Burmeister.

For the privilege of studying the types of the species described by Berg I am indebted to Dr. Max Biraben, Jefe del Departamento de Zoología (Invertebrados) del Museo de La Plata. Dr. Jose A. de Carlo has kindly sent me for study the specimens belonging to the collection of the Museo Argentina de Ciencias Naturales and H. G. Barber has sent the undetermined material in the collection of the U. S. National Museum. Dr. Carl J. Drake and John C. Lutz have graciously permitted me to study the tropical species represented in their extensive collections.

***Harmostes procerus* Berg**

1879. *Harmostes procerus* Berg, Hemip. Argentina: 91.  
 1922. *Harmostes procerus* Pennington, Physis 5: 166.  
 1924. *Harmostes procerus* Jensen-Haarup, Ent. Medd. 14: 329, figs. 10c, 10d.  
 1941. *Harmostes procerus* Torre-Bueno, Bull. Brooklyn Ent. Soc. 36: 86.

I have had the privilege of studying the type series of this species. One of the specimens bears the pin label "*Typus*" and a second label "*Harmostes procerus* Berg." This individual, a male in good condition, also carries the label "Banda Oriental." I designate it *lectotype* and have added a label. The other specimens in the type series all bearing Berg's "*Typus*" label are designated paratypes.

The species appears to be common in the Argentine. It exhibits a wide range in color variations and seems to bear a somewhat similar relation to the South American Harmostini as *H. reflexulus* (Say) does to the North

American forms. Gibson was wrong in his synopsis of the original description when he said of the pronotum, "lateral margins strongly crenulate," as was Torre-Bueno also in placing the species in that section of his key with lateral margins of pronotum smooth. As a matter of fact, the edge of the pronotal side margins is very minutely, obsoletely crenulate. The membrane is not spotted but is marked with a more or less distinct fuscous streak through its middle. This is sometimes distinctly divided by the pale veins.

In addition to the type series I have seen a long series of specimens from Montevideo and various localities in the Argentine belonging to the La Plata Museum, the Museum of Buenos Aires, the U. S. National Museum, and the Pennington collection. The size varies from 5.5 mm, small males, to 8.4 mm, larger females. Jensen-Haarup has figured the male genital segments.

***Harmostes prolixus* Stål**

1860. *Harmostes prolixus* Stål, Rio Janeiro Hemip. 1: 30.  
 1879. *Harmostes prolixus* Berg, Hemip. Argentina: 91.  
 1922. *Harmostes prolixus* Pennington, Physis 5: 165.  
 1924. *Harmostes prolixus* Jensen-Haarup, Ent. Medd. 14: 327, figs. 10a-b.  
 1934. *Harmostes prolixus* Blote, Zool. Meded. 17: 254.  
 1941. *Harmostes prolixus* Torre-Bueno, Bull. Brooklyn Ent. Soc. 36: 85.

The La Plata collection contains the specimen recorded by Berg from "Corrientes" and two additional specimens from Córdoba. The Museum of Buenos Aires collection contains a specimen from La Paz, Dep. San Javier, Córdoba, and another from Bolivia, Steinbach. 1916. I have seen other specimens from Grand Chaco, Paraguay; Cuatro Ojos and Santa Cruz, Bolivia; Prov. Buenos Aires and Puesta, Argentina; São Paulo and Nova Teutonia, Brazil.

The species is closely related to *Harmostes raphimerus* Spinola but has a narrower, more elongate form, and the pronotal lateral margin is very narrow and sharply reflexed. The bucculae end on or slightly before a line drawn

<sup>1</sup> Received August 21, 1941.

through front margin of eyes. The entire clavus and corium, except for a small area near apex of middle basal cell of corium (cell R or discal cell), is coarsely punctate. The male parameres are distinctly shorter and broader than depicted in Jensen-Haarup's figure and the rim of the genital capsule extends across the base of the median process and caudad to it. In *procerus*, however, it is the margin of the capsule that is produced as is figured.

#### *Harmostes apicatus* Stål

1860. *Harmostes apicatus* Stål, Freg. Eug. Resa., Ins.: 238.  
 1879. *Harmostes apicatus* Berg, Hemip. Argentina: 91.  
 1917. *Harmostes apicatus* Gibson, Ent. News 28: 444.  
 1922. *Harmostes apicatus* Pennington, Physis 5: 165.  
 1924. *Harmostes apicatus* Jensen-Haarup, Ent. Medd. 14: 327, fig. 10f.  
 1934. *Harmostes apicatus* Blote, Zool. Meded. 17: 253.  
 1941. *Harmostes apicatus* Torre-Bueno, Bull. Brooklyn Ent. Soc. 36: 86.

The two specimens recorded by Berg from Buenos Aires and Corrientes are present in the La Plata collection. Other examples before me are from Buenos Aires and Tigre, Argentina; Horqueta and Grand Chaco, Paraguay; Villa Montes, Izozo, Cuatro Ojos, and Santa Cruz, Bolivia; and Para and Nova Teutonia, Brazil.

The small size, the rather wide and punctate reflexed lateral margins of the pronotum, the transparent and impunctate (except for marginal rows) inner cells of the corium, and the short bucculae, which taper posteriorly to a point opposite front half of eyes, are distinctive features. The pronotal edge while not caloused and completely smooth can not be called crenulate (cf. Gibson).

In all the specimens I have seen there is a more or less distinct infuscation in the apical cells of the corium. The hind margin of the male genital capsule is sinuately emarginate, with a small angular notch at its middle.

#### *Harmostes serratus* (Fabricius)

1794. *Acanthia serrata* Fabricius, Ent. Syst. 4: 75.  
 1794. *Coreus gravidator* Fabricius, Ent. Syst. 4: 133.  
 1803. *Coreus gravidator* Fabricius, Syst. Rhyng. 199.

1852. *Harmostes perpunctatus* Dallas, List Hemip. 2: 521.  
 1868. *Harmostes serratus* Stål, Hemip. Fabriciana 1: 67.  
 1934. *Harmostes serratus* Blote, Zool. Meded. 17: 254.  
 1939. *Harmostes serratus* Barber, Sci. Survey Porto Rico 14 (3): 326.  
 1941. *Harmostes serratus* Torre-Bueno, Bull. Brooklyn Ent. Soc. 36: 83.

I have seen specimens of what I take to be *serratus* from Antigua, Trinidad, Hayti, Colombia, and Panama. This form has a very wide range, and the complex consists of several incipient and as yet unfixed species or it is a highly plastic thing. As might be expected, the literature concerning it is involved.

Lateral margins of pronotum pale, reflexed and with a row of 10 to 12 clean-cut teeth extending well up on hind lobe and there giving way to coarse serrations. Tylus, as seen from the side, conspicuously angularly produced, reaching to distal fifth of antennal I. Spine of antenniferous tubercle much longer than in *affinis*, the distance from front of eye to apex of spine greater than length of an eye. Bucculae about attaining a point opposite middle of eye. Antennal III distinctly longer than II, IV about one-half of III. Humeri of pronotum distinctly angular. Male paramere short, broad. Membrane spotted. Clavus and entire corium, except small area at apex of emboliar suture (median furrow), opaque, coarsely punctate.

#### *Harmostes affinis* Dallas

1852. *Harmostes affinis* Dallas, List Hemip. 2: 522.  
 1879. *Harmostes serratus* Berg, Hemip. Argentina: 90.  
 1907. *Harmostes affinis* Van Duzee, Bull. Buffalo Soc. Nat. Sci. 8 (5): 13.  
 1909. *Harmostes affinis* Van Duzee, Bull. Buffalo Soc. Nat. Sci. 9: 161.  
 1917. *Harmostes affinis* Gibson, Ent. News 28: 441, 442.  
 1922. *Harmostes serratus* Pennington, Physis 5: 164.  
 1939. *Harmostes affinis* Barber, Sci. Survey Porto Rico 14 (3): 326.  
 1941. *Harmostes affinis* Torre-Bueno, Bull. Brooklyn Ent. Soc. 36: 83.

Specimens are at hand from Florida, Texas, Mexico, Panama, Colombia, Antigua, Brazil, Paraguay, and Argentina and a long series from various localities in Bolivia. The Argentina specimens are those recorded by Berg and Pennington as *H. serratus* (Fabricius).

The species shows considerable variation and at times is very difficult to separate from *H. serratus* (Fabricius). As pointed out by Van Duzee and by Barber, however, in their extremes the two forms may readily be separated by the degree of development of the tylus, antenniferous spines, and denticulations of lateral edge of pronotum and by the length of the antennal segments and rostrum. It will remain for future studies to show whether *affinis* and *serratus* are distinct segments of a widely distributed and highly plastic species complex and therefore worthy of more than subspecific rank.

Apex of tylus angularly rounded, not distinctly produced, the distance from tip of jugum to tip of tylus distinctly less than length of an eye. Lateral edge of pronotum serrate in front and becoming crenulate posteriorly on hind lobe. Distance from front of eye to apex of antenniferous spine less than length of eye.

#### **Harmostes dorsalis** Burmeister

1835. *Harmostes dorsalis* Burmeister, Handb. d'Ent. 2: 307.

1881. *Harmostes dorsalis* Distant, Biol. Centr.-Amer., Rhyn. Heterop. 1: 168.

1917. *Harmostes dorsalis* Gibson, Ent. News 28: 439, 444.

1934. *Harmostes dorsalis* Blote, Zool. Meded. 17: 254.

1941. *Harmostes dorsalis* Torre-Bueno, Bull. Brooklyn Ent. Soc. 36: 89.

This species was described from Mexico and is the haplotype of the genus, yet it apparently has remained unknown to workers since the time of Burmeister. Distant, in working up the Mexican species for the Biologia, passed it over as unknown, and Gibson on the basis of determinations made by Heidemann placed it in synonymy with *H. serratus* (Fabricius). Blote has more recently recorded the species from Brazil without comment. Of the species I have seen from Mexico it appears to me that the form treated above as *H. affinis* is the one that will most likely prove to be *dorsalis*. A careful study of Burmeister's generic diagnosis with particular attention to the characters of the head, antennae, antenniferous spine, and pronotal margins, as well as the abbreviated color description of the species only serves to intensify my suspicion.

#### **Harmostes formosus** Distant

1881. *Harmostes formosus* Distant, Biol. Centr.

Amer., Rhyn. Heterop. 1: 167, pl. 15, fig. 15.

1917. *Harmostes formosus* Gibson, Ent. News 28: 442.

1941. *Harmostes formosus* Torre-Bueno, Bull. Brooklyn Ent. Soc. 36: 84.

There is in the National Museum a male specimen labeled Atencingo, Mexico, June, 1922, E. G. Smyth, and determined as *formosus* by Mr. Barber. The species is very distinctive by reason of its irregularly dentate lateral margins of the pronotum, the strongly raised posterior lobe with broadly rounded somewhat flaring humeral angles, the long, convex head, the short antennae, and long rostrum. In texture of hemelytra and type of clasper it is nearest *croceus* Gibson and *bicolor* Distant.

Head longer than broad (40:35), distinctly longitudinally convex. Antennae not so long as head, pronotum and scutellum combined, segment I just attaining apex of head, II enlarged at apex, IV not over 4 times as long as thick; proportions, 14:30:30:20. Bucculae tapering posteriorly and ending before a point opposite middle of eye. Rostrum reaching base of third segment of venter.

Pronotum twice as wide as long (66:33), the disk coarsely punctate and rugose, the anterior angles prominent, the lateral margin wide and irregularly serrate in front, narrowing and becoming crenulate backwards to humeri, the latter broadly rounded. Scutellum slightly longer than wide. Hemelytra coriaceous, not noticeably punctate. Membrane spotted, appearing smoky due to dark wings beneath. Metasternum with prominent borders to rostral channel, these high and truncate in front. Venter sulcate at middle of two basal segments. Genital characters of *reflexulus* type, but parameres with characteristic proportions.

Length, 9.0 mm. Width, across humeri, 3.0.

The color is deeper than depicted by Distant. The apices of antennal II and III, all of IV, the apices of the tibiae, the tarsi, and the base of hind tibiae are more deeply colored. The hind tibiae are stout and distinctly compressed.

#### **Harmostes marmoratus** Blanchard

In his notes on the Argentinian species of *Harmostes* Jensen-Haarup treats as *marmoratus* a form that surely is not the true Chilean *marmoratus* of Blanchard. Perhaps as he himself indicates he was dealing only with strik-



ingly colored examples of *H. procerus* Berg. I have given elsewhere notes on the structural features of specimens of *marmoratus* from the Reed Chilean collection.

***Harmostes imitabilis*, n. sp.**

Size medium; form slender, elongate. General color yellowish testaceous, with a roseate tinge, the veins of hemelytra distinctly reddish. Head distinctly longer than wide across eyes (29:24). Spines of antenniferous tubercles short. Tylus compressed, prominent, as seen from the side crenulate, reaching to middle of first antennal segment. Antennae long, longer than head, pronotum and scutellum conjoined; proportions, 18:24:26:17 (female, 20:26:29:19). Bucculae fairly low and long, tapering posteriorly, reaching to a point about opposite middle of eye. Rostrum relatively short, just attaining metasternum, segment I not extending to line of hind margin of eyes; proportions, 15:18:10:12. Pronotum about one and one-half times as wide as long (37:25) only slightly raised posteriorly, the median smooth line obsolete in front and behind but quite conspicuous at the interlobe constriction; the sides straight, their margins narrow, reflexed and finely crenulate; the anterior angle acute, only slightly produced and placed behind the fine collar; humeral angles obtuse. Scutellum longer than broad. Hemelytra with clavus and exocorium coriaceous and coarsely punctate, the rest hyaline and impunctate except for an incomplete marginal row bordering the veins; membrane extending well beyond margin of abdomen, clear; venter pale, the trichobothria dark and conspicuous. Legs pale, the hind femora extending just to apex of abdomen. Male genital capsule deeply, rectangularly excavated at apex, the parameres slender, their tips dark, recurved.

*Length*, 6.2–7.7 mm. *Width* across humeri, 1.7–2.2 mm.

*Holotype*, male, and *allotype*, female, Lujan, Prov. Buenos Aires, Argentina, December 8, 1938, C. J. Drake, collector (my collection). *Paratype*, one male taken with type.

This species has the size and form of *H. procerus* Berg, with which it is very closely allied. From *procerus* it is differentiated by the more convex and laterally sloping disk of pronotum and the narrower pronotal side margins, as well as by the character of the male genital

capsule which in *procerus* is roundly produced at the middle beneath. As in *procerus* the punctures of the pronotum and clavus are very large and coarse. In the male there is visible through the membrane two sublateral elongate dark spots on the last dorsal segment. The second antennal segment is somewhat enlarged and flattened at the base as in *procerus*.

***Harmostes petulans*, n. sp.**

Size medium for the genus; body oblong. General color yellowish to greenish testaceous, marked with dark testaceous to brown; the head, front lobe of pronotum and scutellum at times varying toward orange. Head faintly broader across eyes than its median length (23:22), above rather horizontal and somewhat longitudinally convex; clypeus compressed laterally, raised, its edge only slightly granulate, in front more or less rounded and not produced, reaching to distal third of first antennal. Spines of antenniferous tubercles as seen from above short, slender, slightly incurved; from the side, almost triangular. Bucculae short, rather high and of equal height throughout, ending abruptly at a line drawn through front margin of eyes. Antennae short, about as long as head, pronotum and scutellum combined, length of segment I faintly less than width of head between eyes (12:13); proportions, 12:20:21:17 (female, 13:22:22:19). Rostrum extending to middle of metasternum, segment I reaching only to a point about opposite hind margin of eyes; proportions, 15:14:11:13. Pronotum nearly twice as wide as long (male, 40:22; female, 46:24), distinctly raised posteriorly, with a median smooth line which is most prominent between the lobes; the lateral margins moderately wide, sharply reflexed, punctate, the edge almost smooth (obsoletely granulate) and forming a straight or barely sinuate line; anterior angles only slightly produced, placed a little behind the very narrow collar; humeral angles obtusely rounded. Scutellum equally as long as wide, the apex broadly rounded. Hemelytra with clavus and exocorium thickly punctate, the other cells transparent and impunctate except for a marginal row around their borders. Membrane clear, without darker markings, extending well beyond apex of abdomen. Prothorax as seen from the side with the reflexed upper edge shiny, smooth, with only a few

punctures. Metapleuron strongly sinuate along its hind margin. Hind femora projecting distinctly behind apex of abdomen. Hind tibiae without a distinct dark annulus at apex. Venter with the usual trichobothriae which are pale and inconspicuous; sixth segment rather strongly laterally compressed in the female. Male genital capsule with its hind margin almost straight, or widely truncate, between the prominent lateral angles. Male clasper slender, the apex dark, recurved and bifid.

*Length*, 5.1–6.2 mm. *Width* (across humeri), 1.9–2.3 mm.

*Holotype*, male, and *allotype*, female, Cuatro Ojos, Bolivia, September 1917 (in my collection). *Paratypes*, one male, taken with types; one female, Villa Montes, Bolivia, November, 1917; one male, Lima, Peru, February 2, 1939, Carl J. Drake; one female, Argentina, 1939.

This species is perhaps nearest *Harmostes minor* Spinola which it superficially resembles very much. In *minor*, however, the bucculae taper posteriorly and the pronotal margin is broader and not so strongly reflexed. The specimens at hand show considerable color range. At times the clavus is darkened basally and the veins of hemelytra and the pronotum are flecked with reddish. The small distal cell of the corium is smoky in all specimens at hand.

#### *Harmostes insitivus*, n. sp.

Moderately small, elongate-oval, rather strongly flattened. Pale testaceous, conspicuously speckled with reddish brown. Head about equally as long as broad (21:22), not noticeably arched above; tylus low, not produced anteriorly, extending faintly beyond middle of first antennal segment. Spines of antenniferous tubercles short, from above very slender, from the side almost triangular. Antennae short, subequally as long as head, pronotum, and scutellum conjoined, length of segment II equal to distance between eyes, IV stout, dark, thickest beyond the middle; proportions, 11:13:17:12. Bucculae low, gradually sloping posteriorly, reaching about to a point opposite hind margin of eyes. Rostrum extending to middle of metasternum, segment I very slightly exceeding bucculae. Pronotum flat for the genus, twice as broad as long (35:17), the lateral edges straight, the side margins rather wide and only slightly sloping; base not broader than hemelytra. Scutellum

equally as broad as long (15). Hemelytra with clavus and exocorium strongly coriaceous and thickly punctured, of corium not so strongly coriaceous and less profoundly punctured; membrane speckled with brown. Hind femora not attaining apex of abdomen. Venter rough, speckled with brown. Male genital capsule, strongly produced at middle of hind margin, produced portion broadly rounded.

*Length*, 4.5 mm. *Width*, across humeral angles, 1.6 mm.

*Holotype*, male, and *allotype*, female, Cauquenes, Chile, September, my collection. *Paratype*, one male taken with type.

This species is probably nearest *marmoratus* in the nature of the antennae, bucculae, hemelytra, and genital capsule but is very distinct by virtue of its more oval and more flattened form, the nature of the pronotal margins, the spotted membrane, the more greatly produced median portion of male genital capsule and the lower bucculae. The front angles of the pronotum are not especially sharp and the distance across humeri is not greater than width across base of hemelytra.

#### *Harmostes gemellus*, n. sp.

Size small to medium for the genus; form rather oblong-oval, quite broad behind the head. Greenish to yellowish testaceous, the pronotum, scutellum, clavus, and distal portion of corium tinged with brown, the expanded margin of pronotum and exocorium spotted with brown. Head rather flat above, slightly longer than broad (male, 23:21; female, 26:24). Tylus rather narrow and high, granulate or obsoletely crenulate, reaching slightly beyond middle of first antennal segment. Spines of antenniferous tubercle very slender from above. Antennae short, not longer than head, pronotum and scutellum combined, and segment II about equal to width of frons plus one eye, slightly swollen at apex; IV stout, suddenly enlarged at basal third, not over 4 times as long as thick; proportions, 12:15:16:13 (female, 14:17:18:15). Bucculae rather high, sloping sharply, ending before middle of eyes. Rostrum extending to rear of metasternum.

Pronotum twice as wide as long at median line (male, 40:19; female, 51:22), the sides sinuate, their margins very wide and broadly reflexed, the edge almost smooth; front lobe short and narrow, the hind lobe prominently

raised and strongly widened; median line present; disc granulate as well as punctate; front angles obtuse, humeral angles broadly rounded. Scutellum subequally as long as broad. Hemelytra as broad as pronotum, the clavus and corium, except for cell enclosing embolial fracture (discal cell), thinly coriaceous and thickly punctate. Membrane clear, without darker markings. Metapleuron concave along hind margin. Hind femora just attaining tip of abdomen. Venter broad, the trichobothriae pale, inconspicuous. Male genital capsule short, its hind margin beneath widely excavate and bi-sinuate. Male clasper slender, the tip darkened and recurved.

*Length*, male, 4.4 mm; female, 5.6 mm. *Width*, at base of pronotum, male, 1.8 mm; female, 2.3 mm.

*Holotype*, male, Lujan, Buenos Aires, Argentina, December 18, 1938, Carl J. Drake (author's collection). *Allotype*, female, Lima, Peru, February 2, 1938, Carl J. Drake.

#### *Harmostes confinis*, n. sp.

Form elongate oval, the humeri projecting. Yellowish testaceous, the pronotum, scutellum, and hemelytra with brownish markings. Head slightly longer than broad (23:25), rather flat above, the spines of antenniferous tubercles as seen from above long and slender, the tylus high, slightly produced, but not attaining middle of first antennal segment. Antennae longer than head, pronotum and scutellum combined, the second segment in length subequal to width of head, about 6 times as long as thick; proportions 17:21:20:20 (female, 19:24:26:23). Bucculae rather high, gradually tapering backward, ending a little before hind margin of eye. Rostrum reaching on metasternum.

Pronotum twice as wide as long (male, 50:22; female, 60:30), with median smooth line pale and prominent, hind lobe raised and strongly widened so that the lateral edges are concave, side margins quite wide, the anterior lateral angles sharp, distinctly produced; the humeral angles broadly rounded, flaring. Scutellum about as long as wide. Hemelytra with clavus and exocorium coriaceous and strongly punctate, the remainder of corium thin, translucent, and smooth except for a marginal row of punctures bordering the veins. Membrane

without darker markings and with only 8 to 10 long veins. Metapleuron with hind margin concave. Venter pale, trichobothria inconspicuous. Hind femora extending beyond apex of abdomen. Male genital capsule somewhat flattened beneath, hind margin almost straight, only slightly and very widely emarginate.

*Length*, male, 6.0; female, 6.7 mm. *Width*, across humeri, male, 2.3 mm; female, 2.7.

*Holotype*, male, Valparaiso, Chile, my collection. *Allotype*, female, El Salto, Santiago, Chile.

#### *Harmostes fusiformis*, n. sp.

Small, elongate-oval, widest slightly behind the middle. Head testaceous, slightly reddish above, longer than broad (28:24), longitudinally convex, the tylus reaching slightly beyond middle of first antennal segment. Antenniferous spines slender, projecting forward, distance from eye to apex of spine equal to length of eye. Bucculae long, tapering, extending about to base of head and to apex of first rostral segment. Rostrum reaching on metasternum. Antennae short, segment I stout, surpassing tylus by less than half its own length, the three basal segments subequal in length, each equal to width of head between eyes (15). Pronotum yellowish testaceous, flat, coarsely punctate, with a median, smooth raised line on anterior two-thirds, the sides almost straight, converging anteriorly, their edges minutely crenulate, the front angles produced and prominent. Scutellum concolorous with pronotum, one-third longer than broad (20:15). Hemelytra, greenish, the clavus and endocorium reddish, entirely coriaceous, the clavus and exocorium coarsely punctate, the endocorium with punctures bordering the veins. Membrane narrow, twice as long as wide, reaching slightly beyond apex of abdomen, clear hyaline. Legs short, reddish testaceous, hind femora not approaching apex of abdomen. Venter swollen, sixth segment in female compressed laterally.

*Length*, 5.5 mm. *Width*, at base of pronotum, 1.52 mm; at widest point, 2 mm.

*Holotype*, female, Quintin, Peru, Dr. P. Weiss, collector (U. S. N. M.).

The small size, coriaceous hemelytra, flattened pronotum, uniform length of the three basal antennal segments, and the almost fusiform shape combine to make this species unique in the genus. Its general habitus is suggestive of brachypterism.